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INFORSE-Europe Comments to Communication on A European Strategic Energy Technology Plan (SET-Plan) 'Towards a Low Carbon Future', COM(2007)723 of November 22, 2007

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INFORSE-Europe is concerned that the proposed SET-plan has a high focus on increased support for development of nuclear fission technologies with the so-called "sustainable nuclear fission initiative" (to support development of a generation IV nuclear fission reactors). INFORSE-Europe is further concerned with the focus on carbon capture and storage as well as with the lack of focus on a number of key renewable energy and energy efficiency technologies. We agree with the need for increased research and development in the energy sector, but we warn that with the proposed SET-plan, there is a high risk that waste of money on un-feasible projects for nuclear fission as well as on carbon sequestration and storage.

INFORSE-Europe find that the SET plan must focus on a number of key renewable energy and energy efficiency technologies, in addition to those proposed. This includes:

- Clean and sustainable use of biomass for heat and electricity. The increased use of biomass for heat and electricity is of key importance to realise the EU renewable energy and climate targets; but the increased biomass production for energy must be sustainable and it must be used efficiently and cleanly. There are needs for:
  -development and demonstration of methods to grow energy crops in ways that provide biomass for energy and at the same time maintain biodiversity and include other functions such as cleaning of water.
  -development of mandatory guidelines for sustainable production of biomass as well as methods to implement and enforce such guidelines
  -development and dissemination of clean and efficient biomass combustion technologies for small applications, with focus on high efficiency and low pollution, in particular to reduce pollution with particulates and VOC's.
  -Development of industrial-scale production of high-efficient, biomass-fired combined heat and power technologies, in particular for smaller applications (below 20 MW)

- Super low-energy houses for all climates. While passive-houses with minimal heating demands are advancing throughout parts of Europe, there is a need to disseminate these solutions further and develop + disseminate solutions for super low-energy houses adapted to all European climates. This must include passive cooling solutions. There is also a need to introduce such solutions adapted to renovation of buildings.

- Renewable energy cooling. With the increasing warming and the increased wealth in Southern Europe, cooling demand is increasing rapidly. At the same time a number of renewable energy and natural cooling solutions exists (solar cooling, night cooling with cold storage, biomass tri-generation, etc.); but they are only applied on a very limited scale. There is a need to develop these solutions into standard industrial products that can be chosen by consumers and installers just as easy as normal air conditioners.

- Sustainable transport. The efforts to replace transport fuels with biofuels can only solve a tiny part of the pollution and sustainability problems of transport. Thus, there is a need to further develop sustainable transport solutions, including vehicles driven by electricity and hydrogen, clean and efficient transport systems for city transport of persons and freight, multi-modal transport solutions to reduce long-haul trucking, and others.

- Geothermal energy. The growth of geothermal energy in Europe is far lower than could be expected from its potential. To speed up the development there is a need to improve the geothermal knowledge. This could reduce the financial risk associated and thereby attract more investors to the technology. There are needs for technological R&D related to the development and deployment of emerging concepts (e.g. Enhanced Geothermal Systems, hybrid systems such as geothermal-biofuels, geothermal-solar, use of low-temperature geothermal sources), as well as R&D related to environmental impacts of geothermal energy use.

- Wave and tidal power. While the Atlantic Ocean and the North Sea have immense potentials for wave power, the commercialisation of the technologies to harness it needs concerted efforts for a number of years, combining research, development, and demonstration. Also in this field, the SET Plan should play an active role. Similar, though smaller, tidal power potentials are also available and should be used.

- Energy Efficient & low-carbon industrial production. More energy efficient industrial production, with optimisation throughout the energy chains and use of on-site co generation as well as renewable energy can reduce the energy demands and greenhouse gas emissions of European industries. That should also be a target for the SET-plan.

- Efficient energy supply chains for low-energy end-uses and renewable energy supplies, optimising energy systems for a future with more small renewable energy inputs and lower demands, is also an important target for a SET plan. This must include intelligent electric grids; but is not limited to that part of the energy systems.

In addition to the need for changes in the technological focus, it is also important that the SET Plan sees the relations between energy industries and the population as a two-way road. The proposal of a more pro-active stance from the industries to overcome public acceptance must be followed by proposals for better dialogues between industries and representatives of the public regarding the technological choices that the industries shall focus on, including with well-informed councils of users and with NGOs. Thus, through improved dialogues between industries and representatives of civil society regarding technological choices, better decisions can be achieved. Ultimately public acceptance comes from a sense of ownership of the decision by the parties concerned, including concerned citizens. Acceptance must be gained with solutions that do not have large public opposition.

Comments to the individual paragraphs of the Communication:
Page 2, 1. first paragraph: the target for 2020 is 30% greenhouse gas reductions, the 20% target mentioned only applies for a situation without an international agreement on greenhouse gas reductions.

Page 3, paragraph "*intrinsic weaknesses in innovation*" The high costs of new technologies mentioned only applies to new nuclear power, carbon capture and storage as well as some renewable energy solutions. Many renewable energy and energy efficiency solutions are cost-effective, for renewable energy technologies at least in certain niches. This is the case for solar heating, off-grid solar PV, windpower in certain locations and applications, most biomass solutions, and others. It is important to stress the need for inclusion of external costs in the evaluations, which will make the sustainable renewable energy solutions more cost-effective. Thus, for many technologies, there is no "valley of death" in the development, in particular not if fossil and nuclear subsidies are abolished and externalities internalised.

P.5 Key EU technology challenges: As mentioned above INFORSE-Europe disagrees strongly with the challenges presented. We propose to add the following challenges:

- Development of clean and sustainable use of biomass for heat and electricity.
- Development and marketing of super low-energy houses for all climates.
- Development and industrialise production of renewable energy and natural cooling solutions.
- Development and introduction/marketing of sustainable transport solutions.
- Development of enhanced geothermal energy technologies and solutions.
- Development and demonstration of wave and tidal power.
- Development and implement energy efficient & low-carbon industrial production.
- Development and introduction of efficient energy supply chains for low-energy end-uses and renewable energy supplies.

We propose to change the challenge "-Enable a single smart European electric grid able to accommodate the massive integration of renewable and decentralised energy sources;" to
-"Development of smart electric grids that can operate locally and interconnected throughout Europe to accommodate massive integration of renewable energy and increase security of electricity supply."
The reason for this proposal to focus on the local, intelligent grids is that with dispersed production, the "grid-intelligence" must also be localised, and that local, intelligent grids can increase security of supply by separating into "grid-islands" with balance between production and consumption in case of grid stability problems. In this way we can avoid the continental-scale power cuts that both Europeans and Americans have experienced in the last decade.

We propose to **delete** the following challenges:
"-Enable commercial use of CO_2 capture, transport, and storage....." We find that the development of these technologies must be covered by the fossil fuel users that they are aimed at, and no EU funding should be used for them.
"-Maintain Competitiveness in fission technologies". We do not think the EU should continue to finance nuclear power development endlessly.
"-Complete the preparations for the demonstration of a new generation (Gen-IV) of fission reactors." We do not find that the solutions proposed for generation IV nuclear fission, such as breeder reactor concepts or high temperature reactors are viable options. They have been tested without success in the past, and the lessons learned from these were not promising. Thus we do not find that it is worthwhile to fund another round of research into these obsolete solutions.
"-Complete the construction of the ITER...". A solution that can only provide energy after 2050 will not play any role in the necessary transition to a low or zero-carbon society and should not be included in the SET plan.

P6, Action by the private sector: add to second paragraph (on public acceptance)
", and seek cooperation with representatives of the public including NGOs to develop and promote solutions that do not have public opposition, and to avoid that any solutions are made against opposition from the majority of the population."

p.7,
Action at the national level, add to third paragraph (on supporting short term potentials)
" beyond the necessary support for market integration"
Action at Community level, add to last item (address common problems.....with wide applicability)
"and acceptance", add a second sentence to the bullet text. and add "Through improved dialogues between industries and representatives of civil society regarding technological choices, better decisions can be achieved."

p.10, proposals for launch of new priority initiatives, starting in 2008.
We propose that the Commission in 2008-2009 also launch the following initiatives:

- *Initiative for clean and sustainable use of biomass for heat and electricity,* with focus on sustainable production of biomass, clean and efficient combustion, and small-scale efficient biomass CHP.
- *Initiative for super low-energy houses for all European climates*, with focus on development and dissemination of passive-house solutions for all European climates, including passive cooling solutions and use of passive-house solutions in renovations.
- *Initiative for renewable energy and natural cooling*, with focus on transforming solutions into industrial products and on dissemination.
- *Sustainable transport energy initiative*, with focus on vehicles driven on electricity and hydrogen, clean and efficient transport systems for city transport for persons and freight, multi-modal transport solutions for long-distance freight.
- *Geothermal energy initiative*, with focus on technological R&D related to the development and deployment of emerging concepts (e.g. Enhanced Geothermal Systems, hybrid systems such as geothermal-biofuels, geothermal-solar, use of low-temperature geothermal sources), as well as R&D related to environmental impacts of geothermal energy use.
- *Wave and tidal power initiative*, with concerted efforts on research, development, and demonstration for use of wave energy as well as tidal energy.
- *Initiative for energy efficient & low-carbon industrial production,* with focus on energy optimisation throughout the energy chains in the industrial production, integration of on-site cogeneration, and of renewable energy.
- *Initiative for development and introduction of efficient energy supply chains for low-energy end-uses and of renewable energy integration.*

We propose that the "European electricity grid initiative" also includes focus on local, intelligent grids as parts of the integrated grids, and on energy storages.

We propose that the Commission does **not** propose the "*European CO_2 capture, transport and storage initiative"* nor the "*Sustainable nuclear fission initiative"* that are mentioned in the Communication. Our reasons behind this position are explained above.

P. 13: Chapter 7. International Cooperation, second paragraph: Include "and participation" after "....public acceptance....."